

# RoHS TEST REPORT

**REPORT NO.:** ROS1701133R

**MODEL NO.:** CK400U, CK-410U, CK410LU, CK400U, CK-430LU, CK-430U, CK430H, CK440U, CK440UL, CK450U, CK450UL, CK460UL, CK-460U, CK-465U, CK-465UL, CK465H, CK-480U, CK490U, CK480U, CK-480MU, CK-480H, CK-601U, CK601UL, CK-600U, CK600UL, CK602, CK603, CK604, CK605, CK606, CK607, CK608, CK609, K-4000, K-5000, CK920U, CK923UL, CK927UL, CX180, CX190, CX350, CX400, CX500

**RECEIVED:** Jan. 09, 2017

**TESTED:** Jan. 10, 2017 to Jan. 13, 2017

**APPLICANT:** Couso Technology Co., Ltd.

**ADDRESS:** No.26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

**ISSUED BY:** Shenzhen SETEK Technology Co., Ltd.

**LAB LOCATION:** 1003, C Bldg, Fuyuan Business Trade Center, 44 District Bao'an, Shenzhen, China

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**SHENZHEN SETEK TECHNOLOGY CO., LTD.**

**Our website:** [www.setek.com.cn](http://www.setek.com.cn)

**TEL:** 86-755-26966362

**E-mail:** [service@setek.com.cn](mailto:service@setek.com.cn)

**FAX:** 86-755-26966270

Prepared for : Couso Technology Co., Ltd.

Address : No.26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

Product : Wired Keyboard

Model No. : CK400U, CK-410U, CK410LU, CK400U, CK-430LU, CK-430U, CK430H, CK440U, CK440UL, CK450U, CK450UL, CK460UL, CK-460U, CK-465U, CK-465UL, CK465H, CK-480U, CK490U, CK480U, CK-480MU, CK-480H, CK-601U, CK601UL, CK-600U, CK600UL, CK602, CK603, CK604, CK605, CK606, CK607, CK608, CK609, K-4000, K-5000, CK920U, CK923UL, CK927UL, CX180, CX190, CX350, CX400, CX500  
The applicant models are all identical in interior structure, electrical circuits and components, and just the model names are different for the marketing requirement.  
We prepare CK400U for the test.

Trademark : COUSO/BANRUO

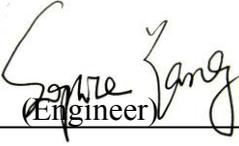
Manufacturer : Couso Technology Co., Ltd.

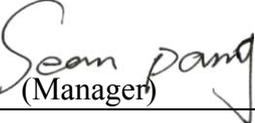
Address : No.26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

Specification(s) : Screening by XRF spectroscopy of submitted samples and chemical confirmation test for RoHS directive (2011/65/EU)

Prepared by : Shenzhen SETEK Technology Co., Ltd.

Address : 1003, C Bldg, Fuyuan Business Trade Center, 44 District Bao'an, Shenzhen, China  
Tel: (86-755) 26966362 Fax:(86-755) 26966270

Prepared by :   
(Engineer)

Approved by :   
(Manager)



Report Number : ROS1701133R

Date of Test : Jan. 10, 2017 to Jan. 13, 2017

Date of Report : Jan. 14, 2017

Conclusion : Based on the reports submitted by applicant, we outline the test data as result pages.

## **Testing method:**

With reference to IEC 62321:2008 Ed 1.0 Electro technical products - Determination of levels of six regulate substances

- (1). Review was performed for the sample and the related Bill of Material submitted by the Applicant.
- (2):
  - a). To refer to the standard IEC 62321-3-1:2013: Screening by XRF Spectroscopy.
  - b). Wet chemical test
    - 1). to refer to IEC 62321-5:2013, determine the Cadmium, Lead content by ICP-OES.
    - 2). to refer to IEC 62321-4:2013, determine the Mercury content by ICP-OES.
    - 3). to refer to IEC 62321-7-1:2015, determine the Hexavalent Chromium content by UV-VIS.
    - 4). to refer to IEC 62321-6:2015, determine the Polybrominated Biphenyls and Polybrominated Diphenyl Ethers by GC-MS.

## **Conclusion:**

<u>Tested samples</u>	<u>Standard</u>	<u>Result</u>
Screening components of submitted samples	Screening by XRF spectroscopy and chemical confirmation test for RoHS directive (2011/65/EU)	Pass

**Test Result**

Part no.	Sample name	XRF results		Chemical confirmation result(mg/kg)
1	Black plastic shell	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
2	Membrane switch	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	BL	
3	Soft PCB	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
4	Silicone rubber dome	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	
5	Metal gasket	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	N.A.	
6	Metal screw	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	N.A.	
7	LED	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	

Part no.	Sample name	XRF results		Chemical confirmation result(mg/kg)
8	PCB	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	
9	Resistor	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
10	Lead-free solder wire	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	N.A.	
11	IC	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	
12	EC Capacitance	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	BL	
13	CC Capacitance	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	
14	Encapsulation IC	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	

Part no.	Sample name	XRF results		Chemical confirmation result(mg/kg)
15	Metal wire	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	N/A	
16	USB -Metal connector shell	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	N/A	
17	USB-White plastic	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
18	USB – Black plastic	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	BL	
19	USB metal pin	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	N.A.	
20	USB line Black line skin	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
21	USB line Black line buckle	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	

Part no.	Sample name	XRF results		Chemical confirmation result(mg/kg)
22	USB line Grey wire skin	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
23	USB line White wire skin	Pb	BL	CrVI: Negative
		Cd	BL	
		Hg	BL	
		Cr	(2#) Inconclusive	
		Br	BL	
24	USB line Blue wire skin	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
25	USB line Red wire skin	Pb	BL	PBBs: <5ppm PBDEs: <5ppm
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	(2#) Inconclusive	
26	USB line Blue wire skin	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	BL	
27	USB line Metal wire	Pb	BL	---
		Cd	BL	
		Hg	BL	
		Cr	BL	
		Br	N/A	

**Remark:**

\* =Exemption item, see annex 1

**ND=Not Detected (<MDL)**
**MDL=Method Detection Limit**

**Remark:**

- Specimens, which requested to determine Cadmium, Mercury and Lead Content by chemical test, have been dissolved completely.
- mg/kg = ppm
- MDL=Method Detection Limit
- N.A.= Not Applicable
- BL= BELOW LIMIT
- \*\*Boiling water extraction:  
 Negative=Absence of Cr(VI);  
 Positive=Presence of Cr(VI);the detected concentration in boiling water extraction solution is equal or greater than 0.02mg/kg with 50cm<sup>2</sup> sample surface area.
- Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.
- (#1) = The screening result was found in the region of inconclusive (See Table B) and further chemical tests were suggested.
- (#2) = Cr or Br were detected above the screening Limit (see table B) and further chemical tests were suggested.

\*\*\*\*\*

(B) XRF Screening Limit in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	$BL \leq (70 - 3\sigma) < X < (130 + 3\sigma) \leq OL$	$BL \leq (70 - 3\sigma) < X < (70 + 3\sigma) \leq OL$	$LOD < X < (150 + 3\sigma) \leq OL$
Pb	$BL \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq OL$	$BL \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq OL$	$BL \leq (500 - 3\sigma) < X < (1500 + 3\sigma) \leq OL$
Hg	$BL \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq OL$	$BL \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq OL$	$BL \leq (500 - 3\sigma) < X < (1500 + 3\sigma) \leq OL$
Cr	$BL \leq (700 - 3\sigma) < X$	$BL \leq (700 - 3\sigma) < X$	$BL \leq (500 - 3\sigma) < X$
Br	$BL \leq (300 - 3\sigma) < X$	Not Applicable	$BL \leq (250 - 3\sigma) < X$

**Remark:**

- A “BELOW LIMIT” (BL) or “OVER LIMIT” (OL) determination will be set at 30 % (50 % for composite materials) less than or greater than the limit, respectively. The margins of safety have been agreed upon based on the experience of many experts and practitioners in the industry. Further explanation for this approach to estimating uncertainty.
- The symbol “X” marks the region, where further investigation is necessary.
- LOD means Limit of Detection.
- The term “3σ” expresses the repeatability of the analyzer at the action level.

(C) RoHS Requirement

Restricted substances	Limits
Lead (Pb)	0.1% (1000 ppm)
Cadmium (Cd)	0.01% (100 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Chromium(VI) (Cr <sup>6+</sup> )	0.1% (1000 ppm)
Polybrominated biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 ppm)

The above limits were quoted from 2002/95/EC and amendment 2011/65/EU.

\*\*\*\*\*

**Remark:**

-Chemical confirmation tests were conducted to verify the inconclusive results, Chromium(VI)(Cr<sup>6+</sup>), Polybrominated biphenyls(PBBs) and Polybrominated diphenyl ethers(PBDEs) content.

-As requested by the applicant, only components shown in this report were screened by XRF spectroscopy for 2002/95/EC, other components were not screened included in this report.

**Disclaimers:**

This XRF Screening Report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF Screening Report is sufficient for its/his/her purposes.

The results shown in this XRF Screening Report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect

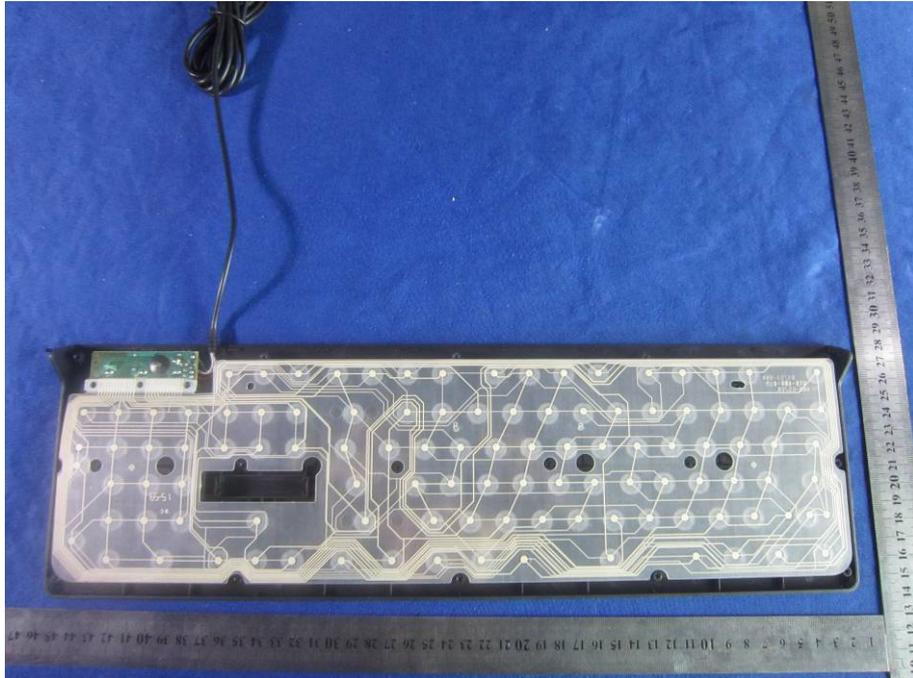
(e.g. Plastic, Rubber, Metal, Glass, Ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

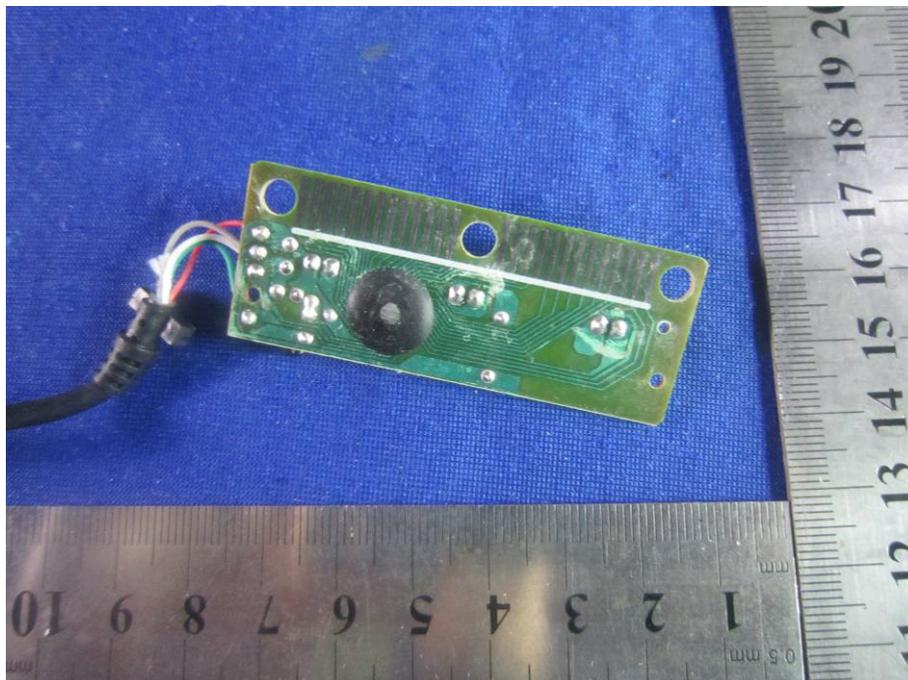
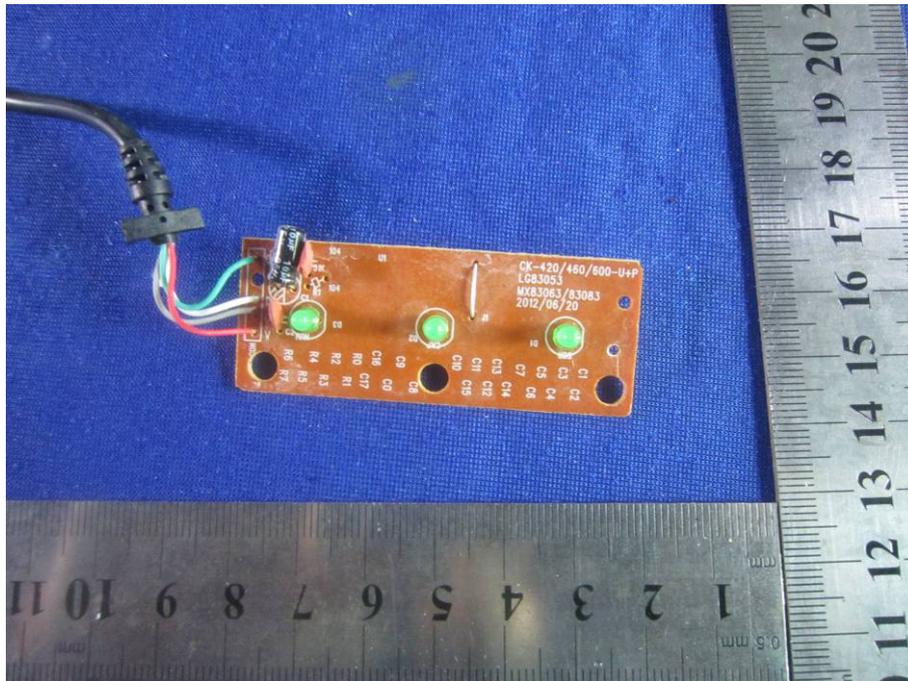
- Photo is included.

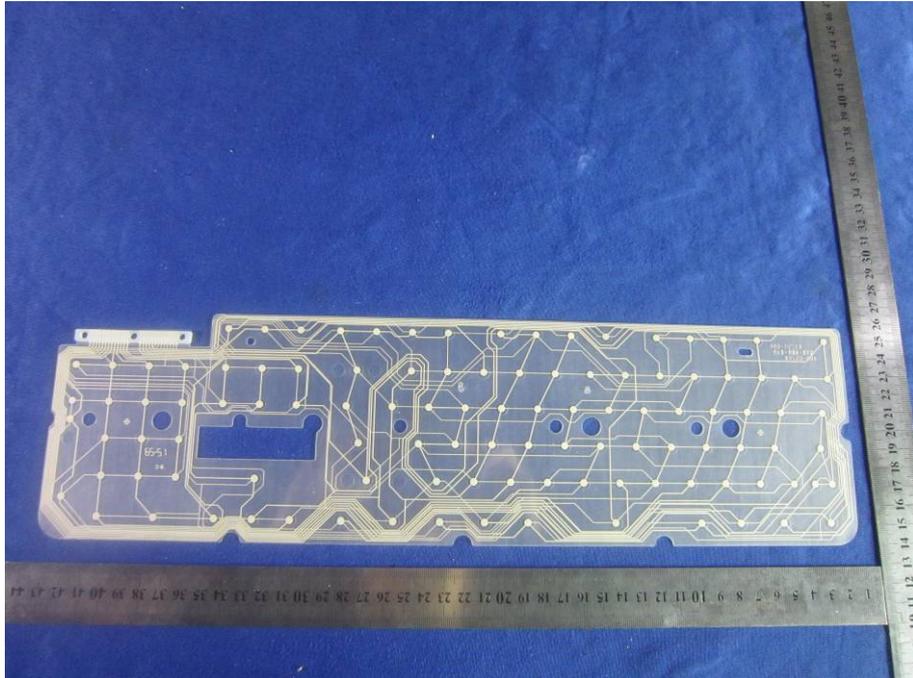
## ANNEX 2

### Sample Photo









## End of the Report